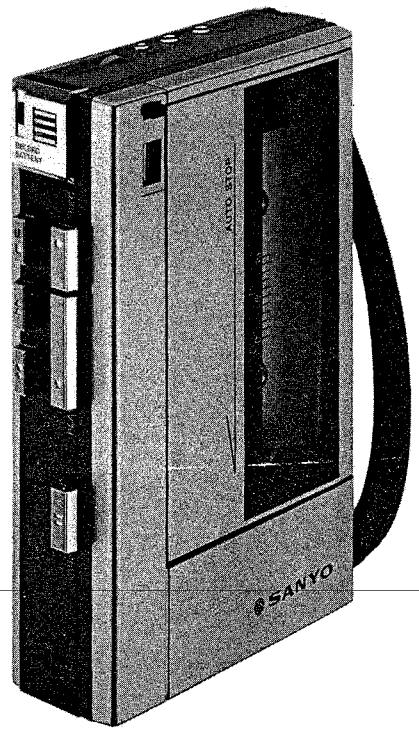
SERVICE MANUAL

SANYO

MINI CASSETTE RECORDER

M1110



142 381 04

SPECIFICATIONS

Power Source	
DC	6V
(UM-3, HP 7, AA Cell, Mignonzelle, R 6) x 4	
Output Power	0.6W (Max.)
Current Consumption (at Vol. Min.)	
Record mode	130mA
Playback mode	120mA
Fast Forward mode	220mA
Rewind mode	220mA
Recording System	DC Bias
Erasing System	Magnet Erasing
Tape Speed	1-7/8ips. ± 3%
Fast Forward Time	150sec. (with C-60)
Rewind Time	150sec. (with C-60)
Wow & Flutter	0.4%, WRMS
Frequency Response (Overall)	200Hz~ 4,000Hz
Erase Ratio (Overall)	40dB
Signal to Noise Ratio	30dB
Crosstalk	
Track to Track	50dB
Harmonic Distortion (K3)	10%
Hum & Noise (at Vol. Min.)	
at Vol. Min.	−50dBs
at Vol. Max.	−30dBs
Terminal Impedance	
MIC.	3kΩ
Ext. Speaker	8Ω

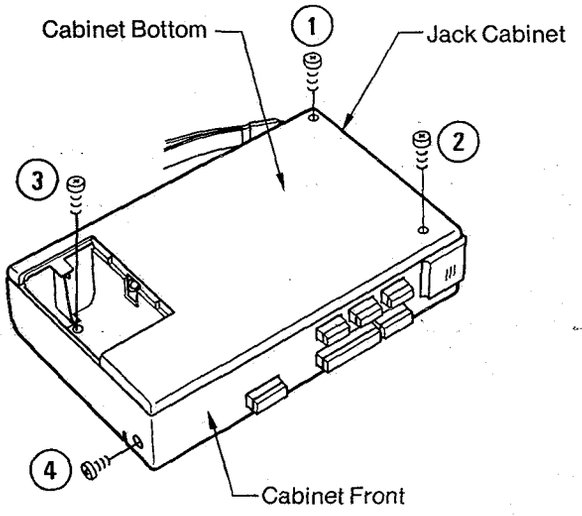
−Specifications subject to change without notice.−

WM-8250

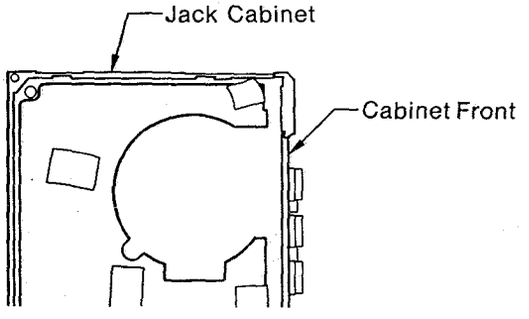
DISASSEMBLY INSTRUCTIONS

CABINET BOTTOM REMOVAL

1. Remove the four screws (1 ~ 4) fastening the Cabinet Bottom and detach the Cabinet Bottom by lifting it, noting the speaker and shield plate leads.



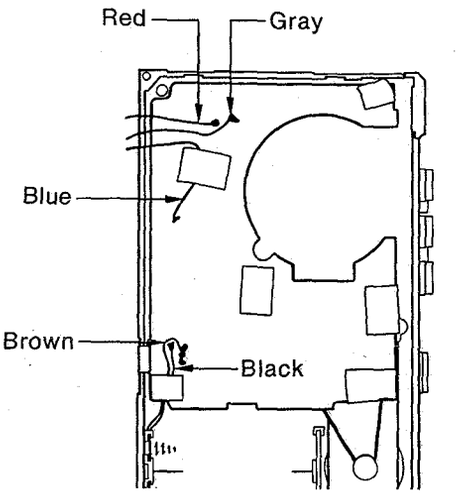
2. The Jack Cabinet and Cabinet Front can be removed from the unit by detaching the Cabinet Bottom.

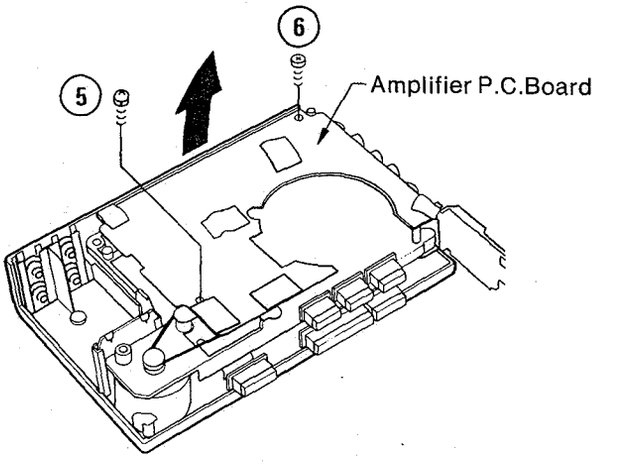


3. Reassemble in reverse order.

AMPLIFIER P.C.BOARD REMOVAL

1. Remove the Cabinet Bottom by following the instructions and unsolder the shield plate lead (gray), the speaker leads (blue and red), and the leads for the power supply (brown and black) from the P.C.Board.





2. Remove the two screws (5 and 6) fastening the P.C.Board.

3. Remove the Amplifier P.C.Board by lifting it in the direction of the arrow, noting the lead wires of the Indicator P.C.Board and Buil-in Microphone.
   If necessary, unsolder their lead.

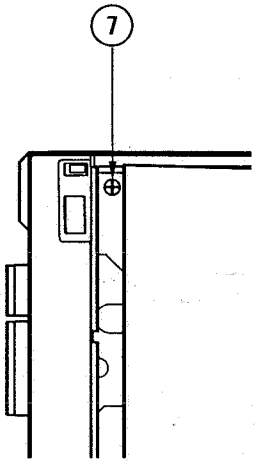
4. Reassemble in reverse order.

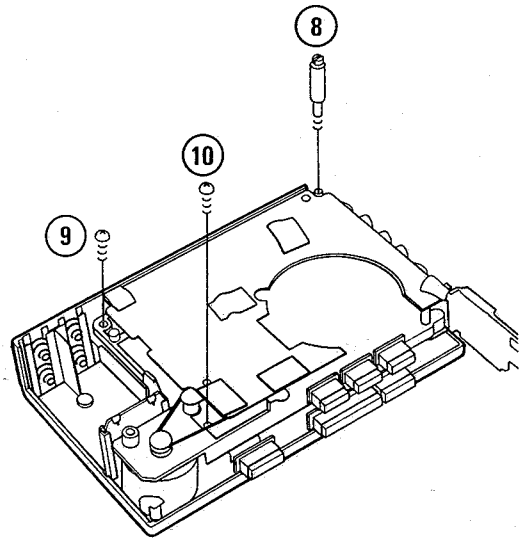
MECHANISM CHASSIS REMOVAL

1. Remove the Cabinet Bottom by following the instructions and unsolder the shield plate lead (gray), the speaker leads (blue and red), and the leads for the power supply (brown and black) from the Amplifier P.C.Board.

2. Open the Cassette Compartment Lid by pressing the STOP/EJECT button and remove the fastening screw (7).

DISASSEMBLY INSTRUCTIONS (Continued)





3. Remove the post (8) and the two screws (9 and 10) fastening the Chassis.

4. Detach the Mechanism Chassis from the Cabinet Top by lifting it, noting the lead wires of the Indicator P.C.Board and Built-in Microphone.
   If necessary, unsolder their lead.

5. Reassemble in reverse order.

ADJUSTMENTS

GENERAL REMARKS

- Before adjustment, wipe the tape contacting surfaces clean as well as the contacting surfaces of the driving parts with a soft cloth soaked in alcohol.
  Trouble may occur because of oil and grease stains.

- Carefully handle the belt because grease easily attaches to it. Then, check the used rubber parts. If the rubber has deteriorated or is scratched, replace the parts with a new one.

EQUIPMENT REQUIRED

- VTVM
- Frequency Counter
- Dummy Load (8Ω)
- Test Tapes
  * 3kHz Test Tape (Example: TEAC MTT-111) for Tape Speed Adjustment
  * 8kHz Test Tape (Example: TEAC MTT-113C) for Head Azimuth Adjustment
- DC Constant-voltage Regulator
- Alignment Tool

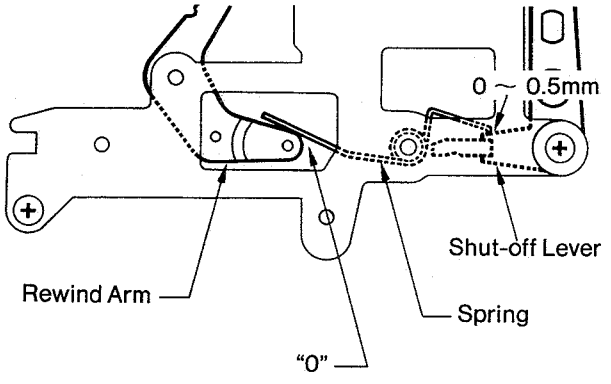
NOTE:
Supply 6V DC to the Ext. Power Jack from the constant-voltage regulator at the adjustment.

AUTO SHUT-OFF MECHANISM ADJUSTMENT

1. When the unit is set in the playback mode, the Shut-off Lever reciprocates according to the rotations of the Take-up Idler and Take-up Reel.

2. Set the unit in the playback mode with the power supply and slowly turn the Flywheel clockwise until the Shut-off Lever comes closest to the Spring.

3. Check that the Spring touches the Rewind Arm, and that the clearance of 0 ~ 0.5mm remains between the Shut-off Lever and Spring as illustrated.



4. If the specified clearance is not obtained, adjust the clearance by bending the Spring.

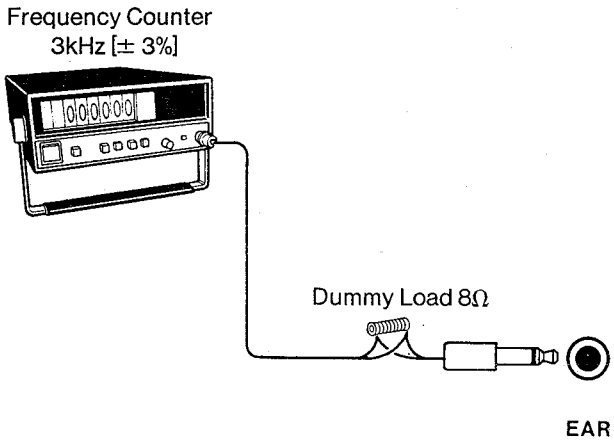
NOTE:
If the clearance is not adjusted correctly, the following symptoms can occur:

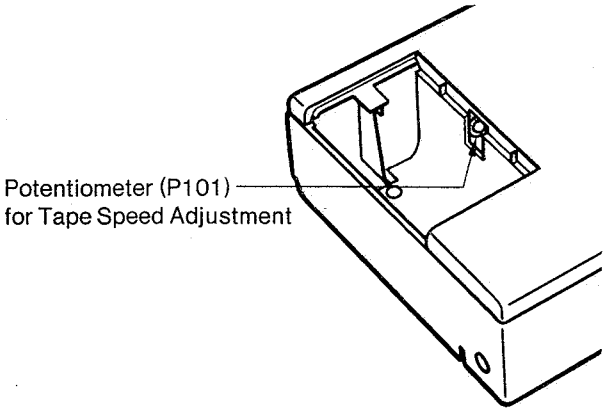
A. When the clearance is more than 0.6mm;
  * When the Rewind button is released to return the unit from the review mode to the playback mode, the unit may shut off automatically.

B. When the Shut-off Lever pushes the Spring while reciprocating;
  * When the tape has reached its end with the unit in the playback mode, the unit may not shut off automatically.

TAPE SPEED ADJUSTMENT

1. Remove the battery compartment lid and connect a frequency counter to the earphone jack as illustrated.
  Then, insert a 3kHz test tape (Example: TEAC MTT-111) into the cassette compartment.



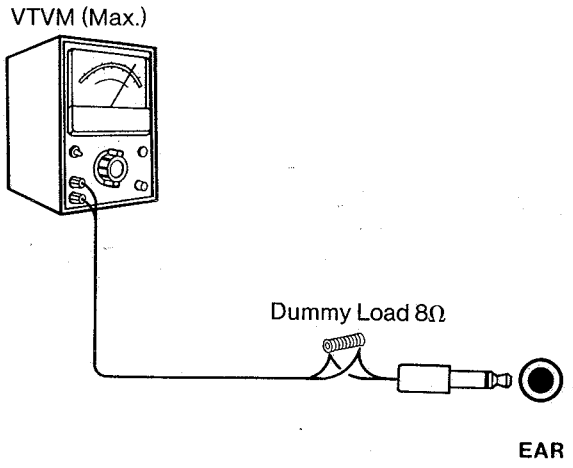


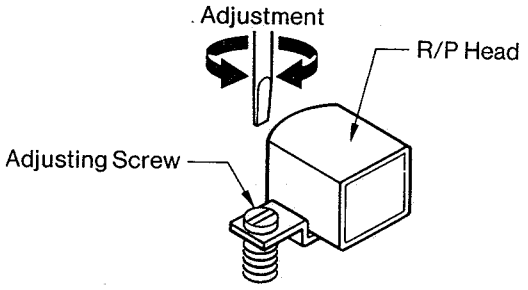
2. While playing back the test tape, adjust the tape speed by turning the potentiometer (P101) on the P.C.Board until the frequency counter reads 3kHz (± 3%).

ADJUSTMENTS (Continued)

HEAD AZIMUTH ADJUSTMENT

1. Connect a VTVM to the earphone jack as illustrated and insert a 8kHz test tape (Example: TEAC MTT-113C) into the cassette compartment.





2. While playing back the test tape, slowly turn the azimuth adjusting screw until the VTVM reads the maximum.

3. After the adjustment, secure the adjusting screw with paint or glue.

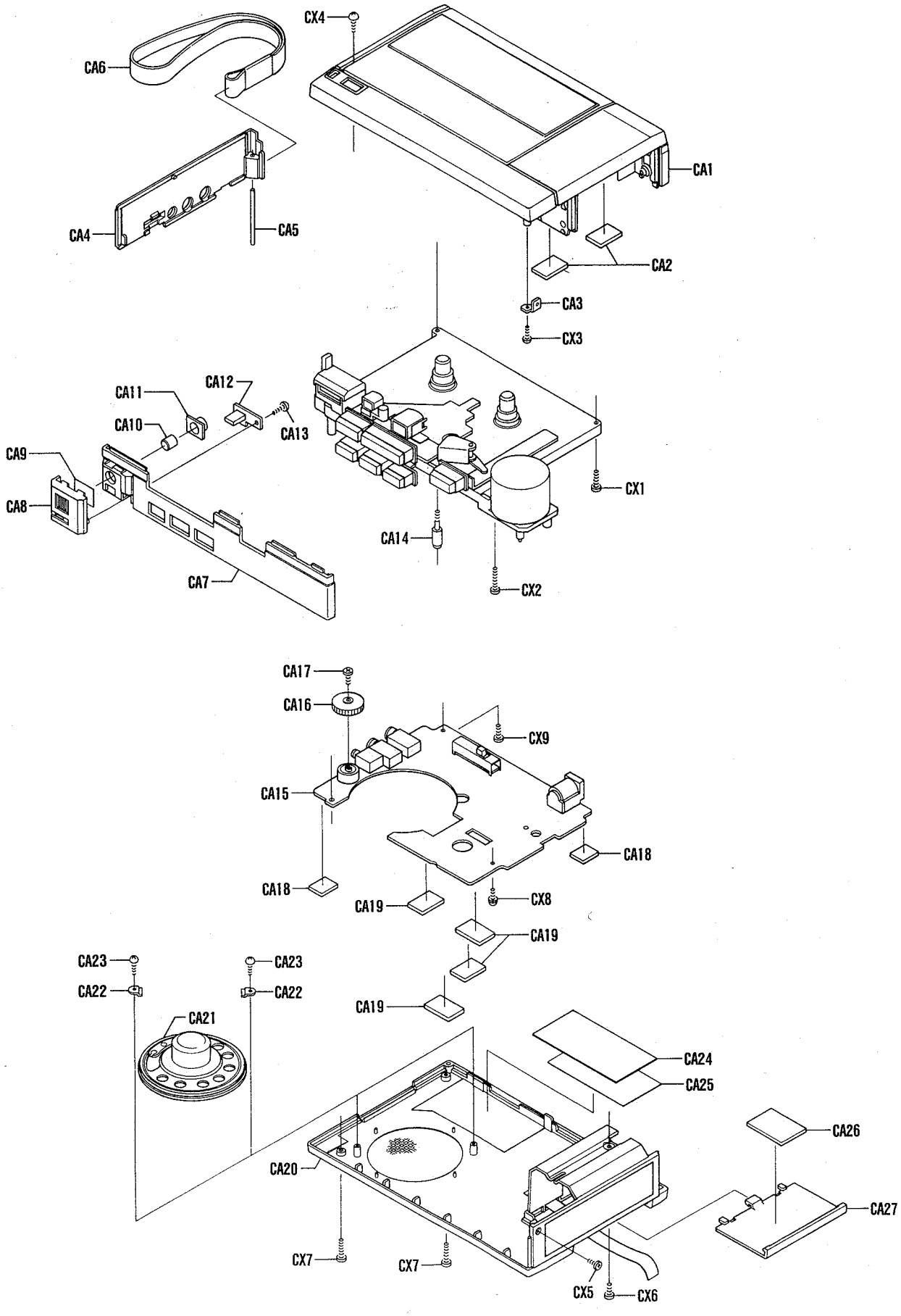
PARTS LIST

Ref. No.	Part No.	Description		Q'ty
	PACKAGE			
	141 6 1419 64700	Individual Carton		1
	141 6 1449 81800	Styrofoam Case		1
	141 6 2519 12090	Poly Cover		1
	141 6 3919 41700	Plain Pad		1
	141 6 4559 00100	Serial No. Sheet		3
	ACCESSORIES			
	4 2419 71641	Cassette		1
	142 6 4119 31556	Instruction Manual		1
	CABINET			
CA1	141 0 1119 87202	Completed Cabinet Top		1
CA2	141 2 4469 17200	Cushion		2
CA3	141 2 2149 15300	Bracket Cabinet		1
CA4	141 2 1119 83200	Cabinet Jack		1
CA5	141 2 2529 05400	Shaft		1
CA6	141 2 1769 07100	Hand Strap		1
CA7	141 2 1119 82201	Cabinet Front		1
CA8	141 2 1519 36300	Decorative Cabinet		1
CA9	141 2 2449 45300	Sheet, Mike		1
CA10	4 1539 70620	Microphone [BM1]		1
CA11	141 2 3899 10100	Holder Mike		1
CA12	4 2269 37520	LED Indicator P.C.B. Assy [**See PCB2**]		1
CA13	141 2 4219 27200	Screw		1
CA14	141 2 7539 21800	Post, Cabinet		1
CA15	4 1329 78092	Amplifier P.C.B. Assy [**See PCB1**]		1
CA16	141 2 1639 50002	Control Knob		1
CA17	141 2 4219 08900	Screw		1
CA18	141 2 4469 14502	Cushion		2
CA19	141 2 4469 17201	Cushion		4
CA20	141 0 1119 87102	Cabinet Bottom Assy		1
CA21	4 1519 71340	Speaker (8Ω) [SP1]		1
CA22	141 2 3729 03100	Bracket, Speaker		2
CA23	141 2 4219 21800	Screw		2
CA24	141 2 3229 39000	Shield Leaf		1
CA25	141 2 2899 26600	Adhesive Sheet		1
CA26	141 2 4469 35200	Cushion		1
CA27	141 2 1339 28302	Battery Lid		1
CX1	101 3 1302 00811	Screw, Pan Hd.	+M2.0x8	1
CX2	101 3 1302 01211	Screw, Pan Hd.	+M2.0x12	1
CX3	103 3 1302 00511	Screw, Pan Hd. Tapping-2	+M2.0x5	1
CX4	103 3 1302 00614	Screw, Pan Hd. Tapping-2	+M2.0x6	1
CX5	128 3 1317 04014	PI Screw-3, Pan Hd.	+M1.7x4.0	1
CX6	128 3 1320 04014	PI Screw-3, Pan Hd.	+M2.0x4.0	1
CX7	128 3 1320 06014	PI Screw-3, Pan Hd.	+M2.0x6.0	2
CX8	131 3 1302 00411	Screw, Pan Hd. C SW	+M2.0x4	1
CX9	143 3 1702 00618	Screw, Bind Hd. Tapping-B	+M2.0x6	1

NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

CABINET EXPLODED VIEW



MECHANISM PARTS LIST

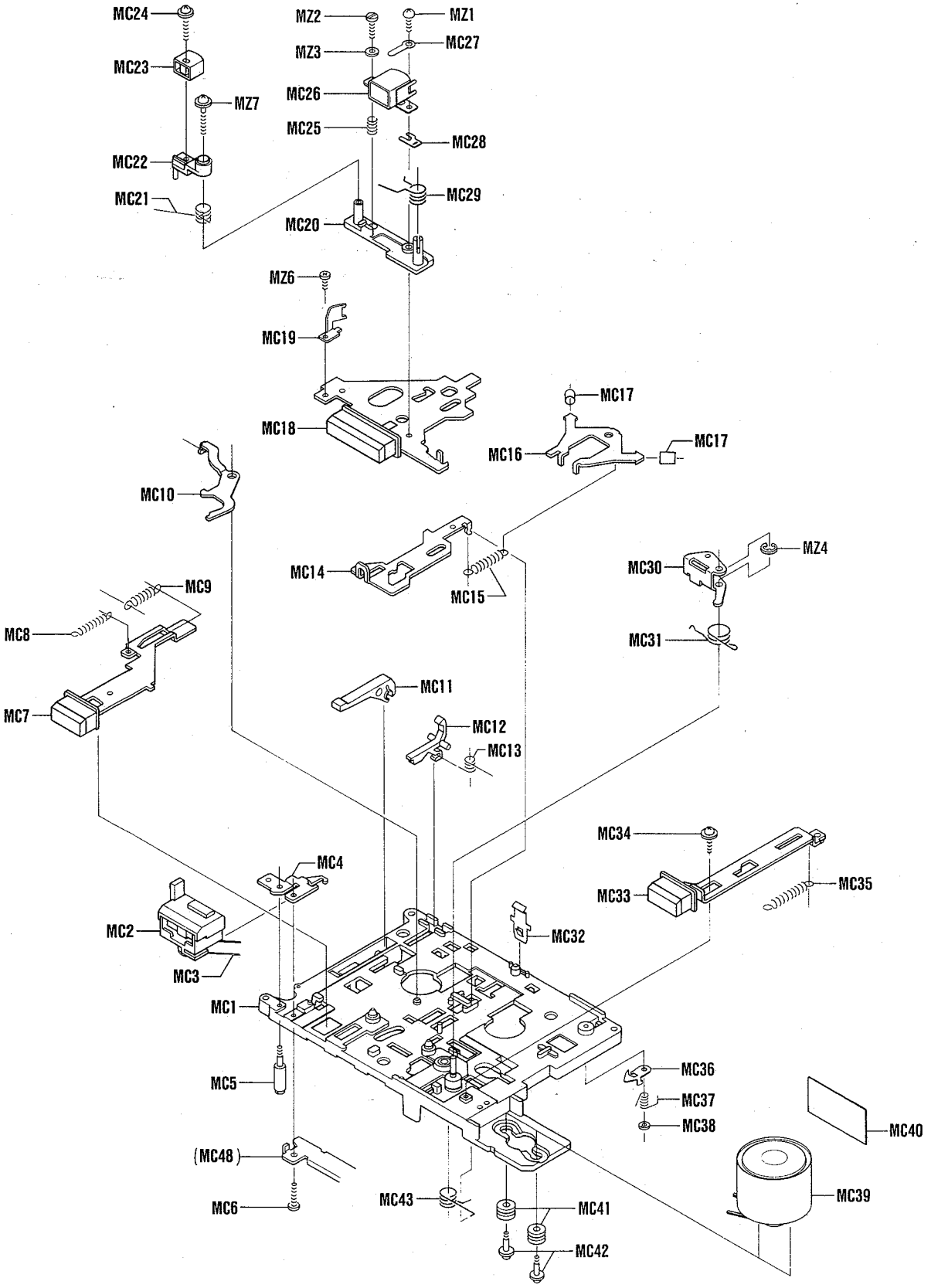
Ref. No.	Part No.	Description		Q'ty
	MECHANISM			
MC1	141 0 3119 21300	Chassis Assy		1
MC2	141 2 8119 10801	Counter		1
MC3	141 2 5649 20200	Counter Belt		1
MC4	141 2 8139 08901	Counter Bracket		1
MC5	141 2 7539 21800	Post, Cabinet		1
MC6	141 2 4219 28100	Screw, Pan Hd.	+M2.0x8.6	1
MC7	141 0 7419 36800	Record Rod Assy		1
MC8	141 2 8519 94300	Spring, Lock Plate		1
MC9	141 2 8519 44100	Spring, Interlock		1
MC10	141 2 8419 11900	Record Lock Lever		1
MC11	141 2 7419 81800	Eject Lever		1
MC12	141 2 8419 11800	Interlock Lever		1
MC13	141 2 8529 10800	Spring, Interloc		1
MC14	141 2 7419 82500	Play Rod		1
MC15	141 2 8519 61100	Spring, Slide		1
MC16	141 2 7149 05800	Brake Arm		1
MC17	141 2 4459 25200	Brake Cover		2
MC18	141 0 7319 25601	Slide Base Assy		1
MC19	141 2 8219 32000	Guide Tape		1
MC20	141 2 3529 36000	Spacer, Head		1
MC21	141 2 8529 10700	Spring, Erase Head Arm		1
MC22	141 2 7439 30600	Erase Head Arm		1
MC23	4 2429 71241	Erase Head		1
MC24	141 2 4219 28300	Screw w/Washer		1
MC25	141 2 8519 47400	Spring, Head		1
MC26	4 2429 71250	R/P Head		1
MC27	141 2 4729 01900	Lug		1
MC28	141 2 3529 18101	Spacer, Head		1
MC29	141 2 8529 11100	Spring, Slide Base		1
MC30	141 0 5459 01900	Pinch Roller Arm Assy		1
MC31	141 2 8529 11200	Spring, Pinch Roller		1
MC32	141 2 8539 46800	Spring, Cassette		1
MC33	141 0 7419 35901	Completed Pause Rod		1
MC34	141 2 4219 13201	Screw w/Washer		1
MC35	141 2 8549 16400	Spring, Pause Rod		1
MC36	141 2 7419 84200	Pause Lock Lever		1
MC37	141 2 8529 10600	Spring, Pause Latch		1
MC38	141 2 4539 29600	Washer		1
MC39	4 5279 71180	Motor		1
MC40	141 2 2449 45200	Sheet		1
MC41	141 2 4459 26800	Cushion, Motor		2
MC42	141 2 4219 23300	Screw		2
MC43	141 2 8529 11000	Spring, Play Rod		1
MC44	141 2 5519 46400	Take-up Idler		1
MC45	141 2 4539 15800	Washer		1
MC46	141 0 7419 35801	Completed Rewind Rod		1
MC47	141 0 7419 35601	Completed F.FWD. Rod		1
MC48	141 2 3169 19700	Bracket Plate		1
MC49	141 2 8519 33000	Spring, Index Lock Lever		1
MC50	141 2 8549 16500	Spring, Stop/Eject Rod		1
MC51	141 2 8519 87900	Spring, Select Lock		2
MC52	141 2 4539 21800	Washer		1
MC53	141 2 5519 46000	Capstan Gear		1
MC54	141 2 8559 03300	Spring, Flywheel		1
MC55	141 0 5219 09000	Flywheel Assy		1
MC56	141 2 5649 20300	Capstan Belt		1
MC57	141 0 3129 01500	Reel Plate Assy		1
MC58	141 2 8559 04600	Spring		1
MC59	141 2 7419 81600	Shut-off Lever		1
MC60	141 2 8529 13000	Spring, ASO Cancel		1
MC61	141 0 5319 07000	Take-up Reel Assy		1
MC62	141 2 4539 28900	Spindle Washer		4
MC63	141 2 8559 04300	Spring, Supply		1
MC64	141 0 5319 07100	Reel Supply Assy		1
MC65	141 0 7439 11200	Rewind Arm Assy		1
MC66	141 2 5519 46100	Rewind Gear		1
MC67	141 2 7439 30400	Selector Link		1
MC68	141 2 7439 30500	Fast Arm		1
MC69	141 2 8549 18400	Spring, Fast Arm		1
MC70	141 2 7419 81700	F.FWD. Lever		1
MC71	141 2 8549 15200	Spring, F.FWD. Rewind Arm		1
MC72	141 2 4539 09300	Washer		1
MC73	141 2 5519 46200	Fast Gear		1
MC74	141 2 4539 30300	Washer		1
MC75	141 0 7419 35701	Stop Rod Assy		1
MC76	141 2 8549 16600	Spring, Eject Plate		1
MC77	141 2 7319 54100	Eject Plate		1
MC78	141 2 7319 54000	Lock Plate		1
MC79	141 2 7419 81900	Cue Review Lever		1
MC80	141 2 8429 06300	Record Plate		1
MC81	141 2 8519 84300	Spring, Flywheel Support		1
MC82	141 2 8519 92500	Spring, Damper Lever		1
MC83	141 2 4539 06900	Washer		1
MC84	141 2 7319 53700	Take-up Arm		1
MC85	141 2 8549 15300	Spring, Take-up Arm		1
MZ1	101 3 1302 00511	Screw, Pan Hd.	+M2.0x5	1
MZ2	101 3 2502 00711	Screw, Cylinder Hd.	-M2.0x7	1
MZ3	110 3 1102 00023	Sm. Round Washer	M2.0	1
MZ4	112 3 1302 00082	E Ring	M2.0	2
MZ5	112 3 1302 50082	E Ring	M2.5	1
MZ6	127 3 1317 02013	PI Screw-1, Pan Hd.	+M1.7x2.0	1
MZ7	135 3 1302 01211	Screw, Pan Hd. C PW	+M2.0x12	1
MZ8	143 3 1702 00618	Screw. Bind Hd. Tapping-B	+M2.0x6	4
MZ9	143 3 1202 00818	Screw, Flat Hd. Tapping-B	+M2.0x8	1

NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

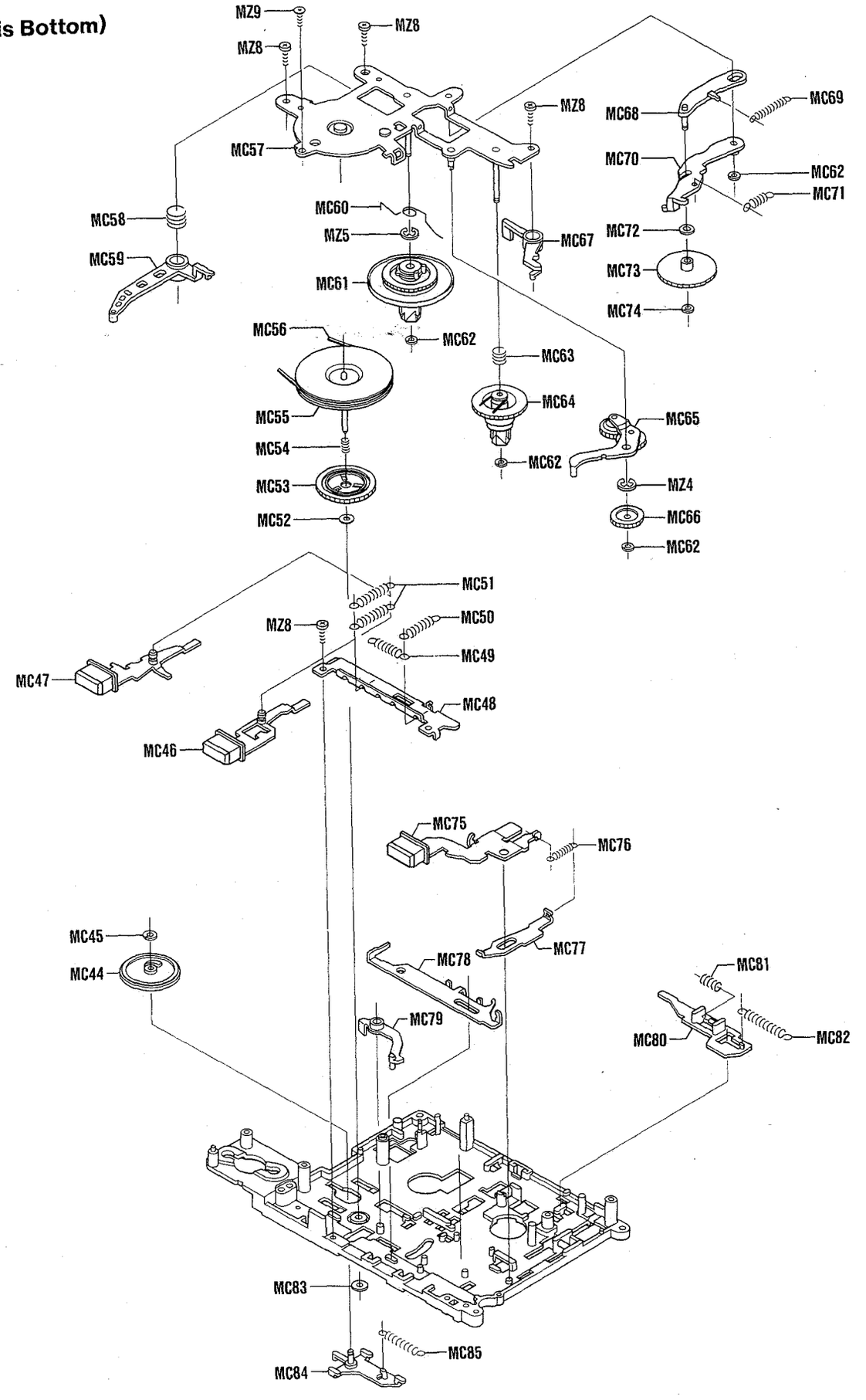
MECHANISM EXPLODED VIEW

(Chassis Top)



MECHANISM EXPLODED VIEW (Continued)

(Chassis Bottom)



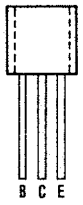
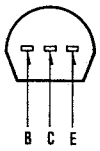
P.C.BOARD PARTS LIST

Ref. No.	Part No.	Description			Q'ty
	AMPLIFIER P.C.B. ASSY				
PCB1	4 1329 78092	Amplifier P.C.B. Assy			1
	4 2269 37500	PRC Board			1
	141 2 4729 04700	Staple, 10mm			8
	141 2 4729 05000	Staple, 5mm			1
J1	4 2359 75472	1P Jack (Mike)			1
J2	4 2359 75472	1P Jack (Earphone)			1
J3	4 2359 75461	1P Jack (Remote)			1
J4	4 2359 72954	Ext. Power Socket			1
S1	4 2319 73400	Slide Switch (Record/Play)			1
S2	4 2319 74490	Leaf Switch (Power)			1
P101	4 2229 73790	Potentiometer (B-3kΩ)			1
VR1	4 2229 73572	Volume Control (A-30kΩ)			1
TH101	204 5 9000 00200	Thermister, SDT 20			1
D1	202 5 9110 18820	Diode, 1S 188			1
Q1	203 5 5100 69372	Transistor, 2SC 693			1
IC1	206 5 1084 14010	IC, LA 4140			1
IC101	206 5 1555 51220	IC, LA5512			1
C1	CM33 3500 K00TV	Mylar	0.033μF	50V ± 10%	1
C2	CT4 7 363A M00AV	Tantalume	0.047μF	6.3V ± 20%	1
C3	CT1 0 563A M00AV	Tantalume	1μF	6.3V ± 20%	1
C4	CD4 7 5350 0002V	Electrolytic	4.7μF	35V	1
C5	CC1 2 2500 KE00C	Ceramic	0.0012μF	50V ± 10%	1
C6	CD4 7 663A 0001V	Electrolytic	47μF	6.3V	1
C7	CT1 0 463A M00AV	Tantalume	0.1μF	6.3V ± 20%	1
C8	CD4 7 5250 0001V	Electrolytic	4.7μF	25V	1
C9	CD4 7 5160 0004V	Electrolytic	4.7μF	16V	1
C10	CC1 0 2500 KE00C	Ceramic	0.001μF	50V ± 10%	1
C11	CD1 0 763A 0001V	Electrolytic	100μF	6.3V	1
C12	CD2 2 740A 0002V	Electrolytic	220μF	4V	1
C13	CC1 2 2500 KE00C	Ceramic	0.0012μF	50V ± 10%	1
C14	CC5 6 1500 KE00C	Ceramic	560pF	50V ± 10%	1
C15	CD4 7 6100 0003V	Electrolytic	47μF	10V	1
C16	CM68 3500 K00TV	Mylar	0.068μF	50V ± 10%	1
C17	CI1 0 3250 KE00C	Boundary	0.01μF	25V ± 10%	1
C18	CD2 2 740A 0002V	Electrolytic	220μF	4V	1
C19	CD4 7 640A 0002V	Electrolytic	47μF	4V	1
C20	4 2239 70520	Capacitor	220μF	6.3V	1
C21	CD2 2 7100 0003V	Electrolytic	220μF	10V	1
C101	CD4 7 4500 0002V	Electrolytic	0.47μF	50V	1
C102	CC2 2 3250 KE00C	Ceramic	0.022μF	25V ± 10%	1
R5	RD1 0 5251 KM000	Carbon	1MΩ	1/4W ± 10%	1
R6	RD1 5 3251 JM000	Carbon	15kΩ	1/4W ± 5%	1
R12	RP5 6 3121 JV000	Pretty Carbon	56kΩ	1/8W ± 5%	1
R16	RP1 0 0121 JH000	Pretty Carbon	10Ω	1/8W ± 5%	1
R18	RP1 0 0121 JV000	Pretty Carbon	10Ω	1/8W ± 5%	1
R22	RD4 7 0251 KM000	Carbon	47Ω	1/4W ± 10%	1
R101	RP1 8 1121 JH000	Pretty Carbon	180Ω	1/8W ± 5%	1
R103	RP5 6 2121 JV000	Pretty Carbon	5.6kΩ	1/8W ± 5%	1
R102	RD8 2 1251 JM000	Carbon	820Ω	1/4W ± 5%	1
	LED INDICATOR P.C.B. ASSY				
PCB2	4 2269 37520	LED Indicator P.C.B. Assy			1
	4 2269 37510	PRC LED			1
D1	4 2029 72090	LED (Record/Battery)			1

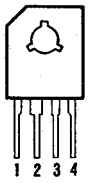
NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

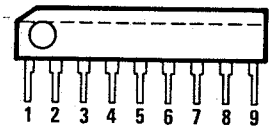
IC & TRANSISTOR LEAD IDENTIFICATION

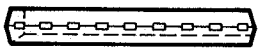
TRANSISTOR	FRONT VIEW	BOTTOM VIEW
2SC693		
TERMINAL NAME		
B→ BASE C→ COLLECTOR E→ EMITTER		

LA5512 FRONT VIEW/BOTTOM VIEW

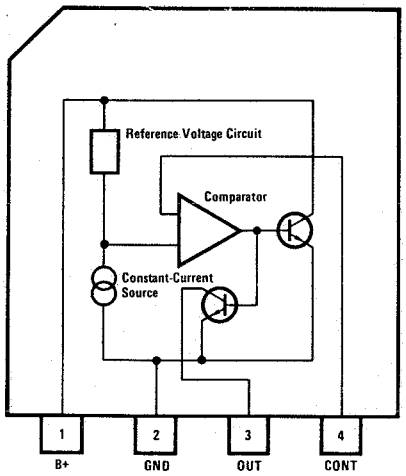


LA4140 FRONT VIEW/BOTTOM VIEW

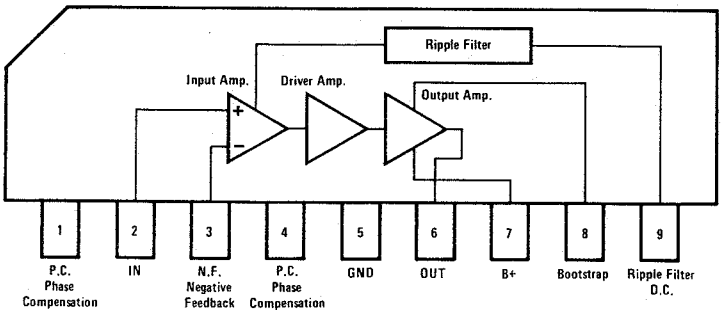




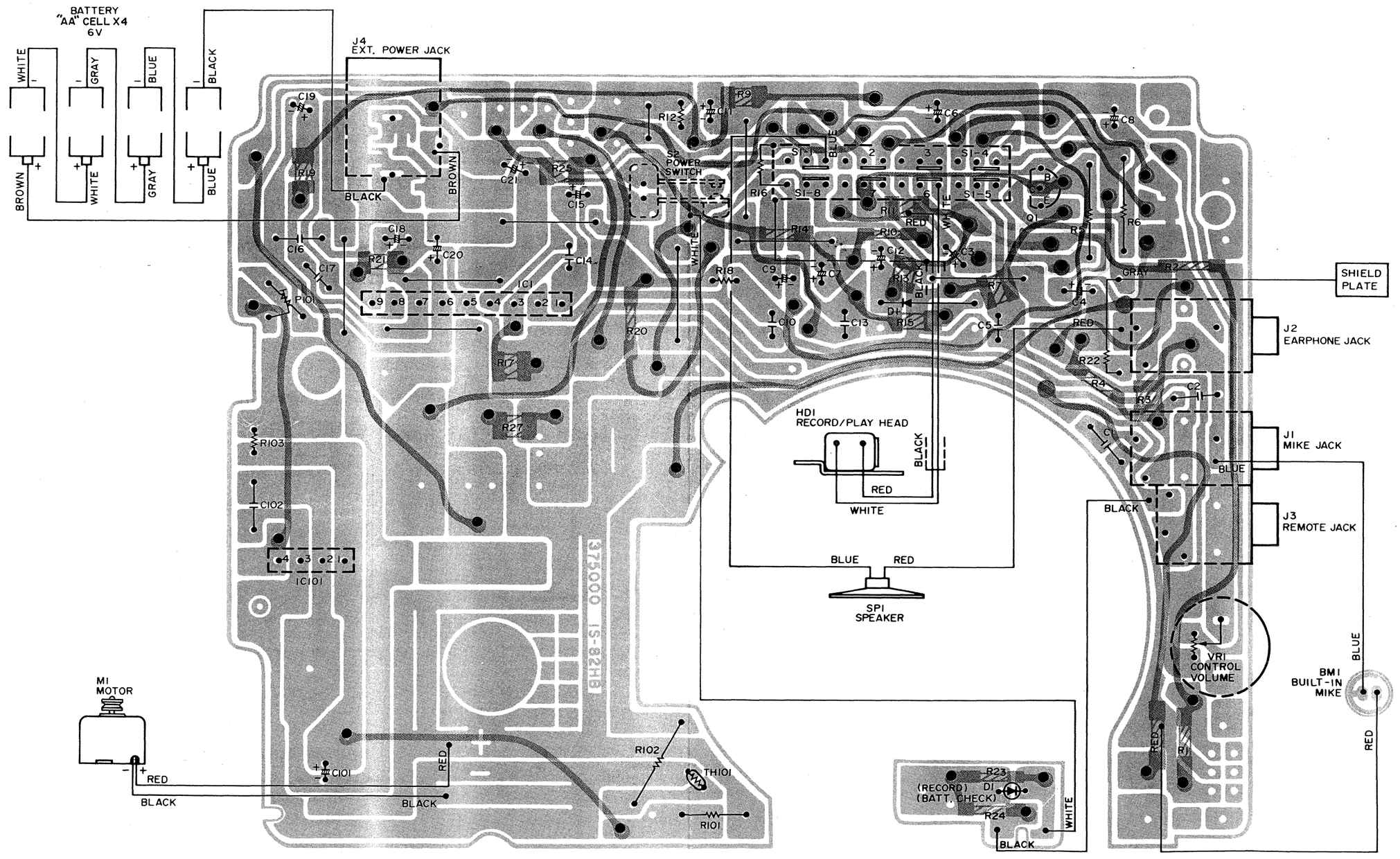
LA5512 BLOCK DIAGRAM



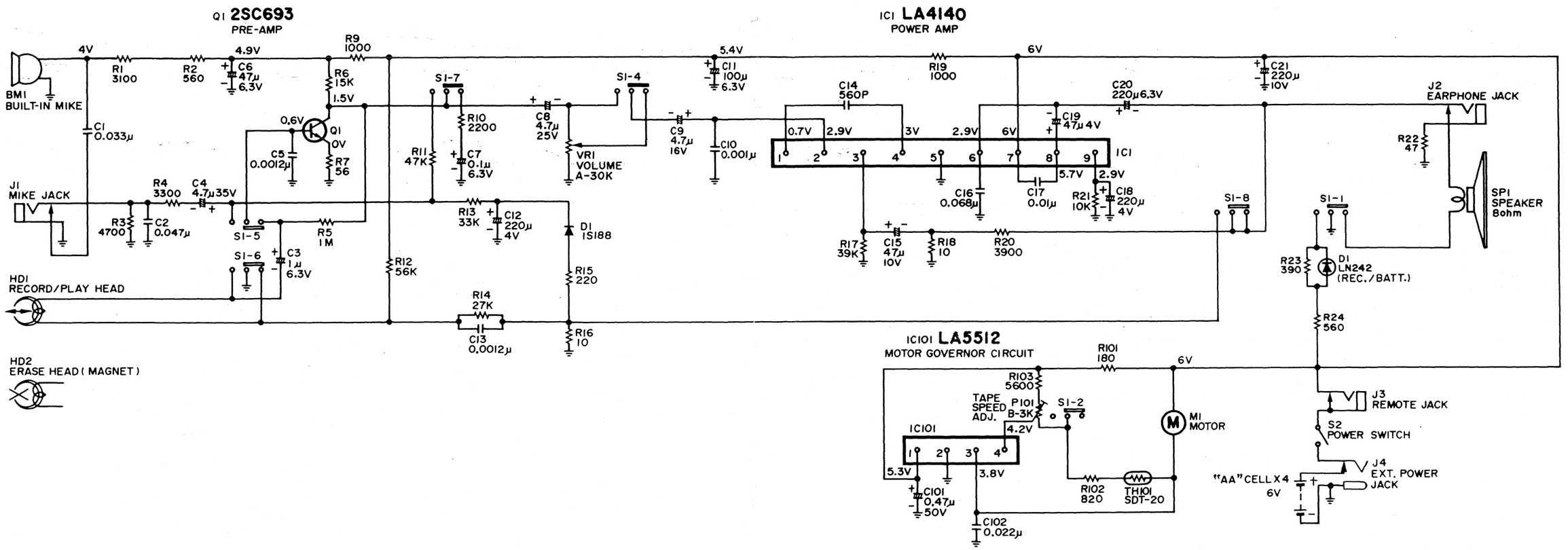
LA4140 BLOCK DIAGRAM



WIRING DIAGRAM



SCHEMATIC DIAGRAM



No.	Name	Position
S1	Record/Play Switch	PLAY
S2	Power Switch	OFF
S3	Mike Sense Switch	LOW